



MR2685-110

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Moon Bae Ko, et al. :
Serial No: 10/069,617 : Art Unit #1714
Filed : 27 February 2002 : Examiner: K. Wyrozebski
Title : METHOD FOR PREPARATION OF
CLAY-DISPERSED POLYMER NANOCOMPOSITE

DECLARATION OF INVENTORS UNDER 37 C.F.R. 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We, the inventors, all citizens of the Republic of Korea, hereby declare as follows:

1. We are the inventors of the invention described in U.S. Patent Application Serial # 10/069,617, presently outstanding, with respect to the Method of Preparation of Clay-Dispersed Polymer Nanocomposite.
2. In the field of polymer science, it is known that clay with its silicate layers imparts new and desirable properties to polymers when incorporated in the compounding of such clay-dispersed polymer nanocomposites. Furthermore, it is desirable to maximally delaminate the silicate layers of clay ores for optimal incorporation into a clay-dispersed polymer nanocomposite. It is further known

that the use of intercalants in the compounding technique can aid in the penetration of polymer resins into the silicate structure of clay, thereby delaminating clay ores and maximally dispersing the silicate layers in the polymer resins.

3. When certain resins are used to prepare the nanocomposites, the conventional compounding techniques fail to completely delaminate clay ores; these include poly(styrene-co-acrylonitrile) copolymer, poly(acrylonitrile-co-butadiene-co-styrene) copolymer, and poly(vinylchloride) resins.
4. Experimentation has led the inventors to the methods of the present subject Application, methods which overcome the above problems and limitations of conventional compounding techniques. In particular, the inventors have discovered that the use of poly(ϵ -caprolactone) in predetermined sizes and amounts solves the problems of the prior art.
5. The inventors disclose their inventive methods in the above-referenced Patent Application, and make reference to the "molecular weight" of poly(ϵ -caprolactone) in both the Specification and the Claims.

6. All references to 'molecular weight' in the subject patent Application are meant to signify "weight average molecular weight", unless otherwise indicated.
7. The laboratory method of sedimentation velocity was used to determine the weight average molecular weights, a method very well known to those skilled in the art of polymer chemistry.
8. The omission of "weight average" in the patent Application's references to molecular weight was inadvertent and without any deceptive intent.

The undersigned Declarants further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the Application, or any Patent issuing thereon.

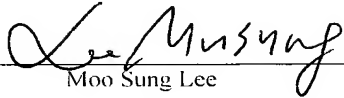
Komb Signed on this 12 day of February, 2004.
Moon Bae Ko

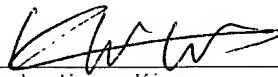
Bum Suk Jung Signed on this 11 day of February, 2004
Bum Suk Jung

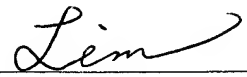
Won Ho Jo Signed on this 11 day of February, 2004
Won Ho Jo

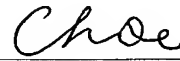
Seong Woo Kim Signed on this 11 day of February, 2004
Seong Woo Kim

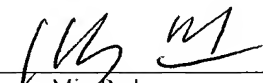
MR2685-110
Inventors' §1.132 Declaration


Moo Sung Lee Signed on this 11 day of February, 2004


Jun Kyung Kim Signed on this 11 day of February, 2004


Soon Ho Lim Signed on this 11 day of February, 2004


Chul Rim Choe Signed on this 11 day of February, 2004


Mip Park Signed on this 11 day of February, 2004